SKKQ 1500/18E

SEMiSTART

Antiparallel thyristors for softstart

SKKQ 1500/18E

Features

- Compact design
- Thyristor with amplifying gate
- Pressure contact technology

Typical Applications*

- Soft starters

Remarks

- Please note: This module has no soft mold protection around the chip. It is therefore susceptible to environmental influences (dust, humidity, etc.). The humidity test according to IEC60068-2-67 is not passed by this product.
- Recommendation: The devices should be installed in control cabinets of IP54 degree of protection.

Footnotes

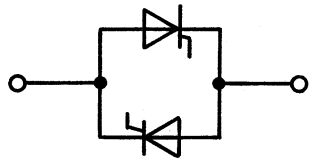
[1] T_{jmax} up to 150°C is allowable for overload conditions, max. time period for the overload condition is 20s.

Absolute Maximum Ratings

Symbol	Conditions		Values	Unit
Module				
$I_{overload}$	W1C, sin. 180°, 20 s, T_{jmax} = 150 °C, T_{jstart} = 40 °C		1500	A
I_{TSM}	10 ms	T_j = 25 °C	17000	A
		T_j = 125 °C	15000	A
i^2t	10 ms	T_j = 25 °C	1445000	A^2s
		T_j = 125 °C	1125000	A^2s
V_{RSM}			1900	V
V_{RRM} V_{DRM}			1800	V
T_j	[1]		-40 ... + 125	°C
T_{stg}			-40 ... + 125	°C

Characteristics

Symbol	Conditions	min.	typ.	max.	Unit
V_T	T_j = 25 °C, I_T = 1700 A			1.5	V
$V_{T(TO)}$	T_j = 125 °C			0.85	V
r_T	T_j = 125 °C			0.3	mΩ
I_{DD};I_{RD}	T_j = 125 °C, V_{RD}=V_{RRM}, per module			190	mA
t_{gd}	T_j = 25 °C, I_G = 1 A, di_G/dt = 1 A/µs		1		µs
t_{gr}	V_D = 0.67 * V_{DRM}		2		µs
$(dv/dt)_{cr}$	T_j = 125 °C		1000		V/µs
$(di/dt)_{cr}$	T_j = 125 °C, f = 50 ... 60 Hz		200		A/µs
t_q	T_j = 125 °C		200		µs
I_H	T_j = 25 °C		150	500	mA
I_L	T_j = 25 °C, R_G = 33 Ω		300	2000	mA
V_{GT}	T_j = 25 °C, d.c.	3			V
I_{GT}	T_j = 25 °C, d.c.	200			mA
V_{GD}	T_j = 125 °C, d.c.			0.25	V
I_{GD}	T_j = 125 °C, d.c.			10	mA
$R_{th(j-r)}$	continuous DC, per thyristor			0.037	K/W
M_t	to terminals	4.25		5.75	Nm
m	approx.		1200		g
Case			2		



W1C

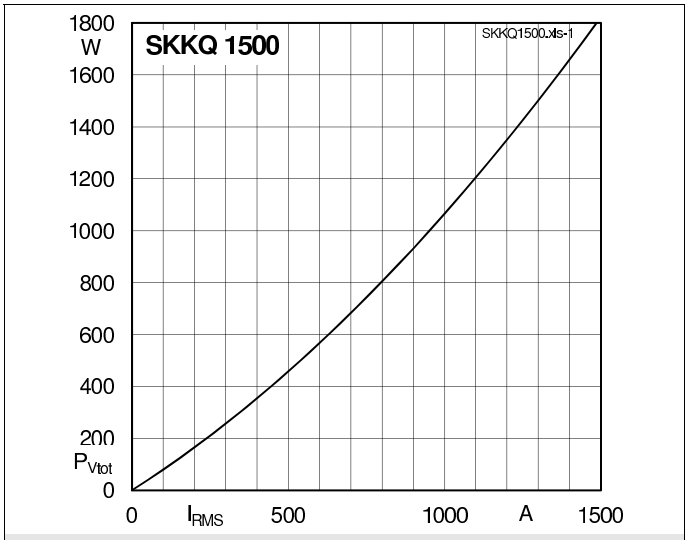


Fig. 1: Power dissipation per module vs. rms current

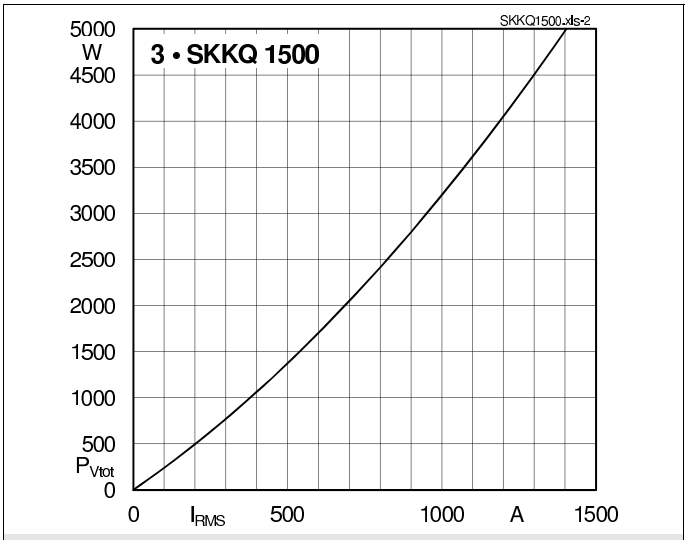


Fig. 2: Power dissipation of three modules vs. rms current

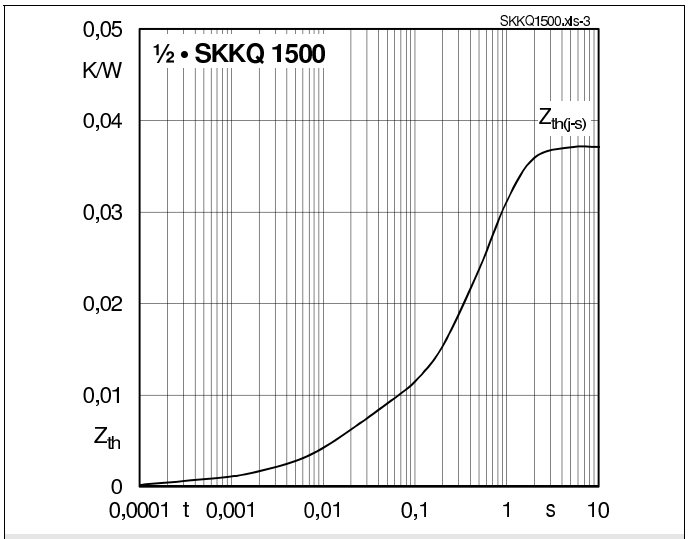


Fig. 3: Transient thermal impedance $Z_{th(j-r)}$ vs. time

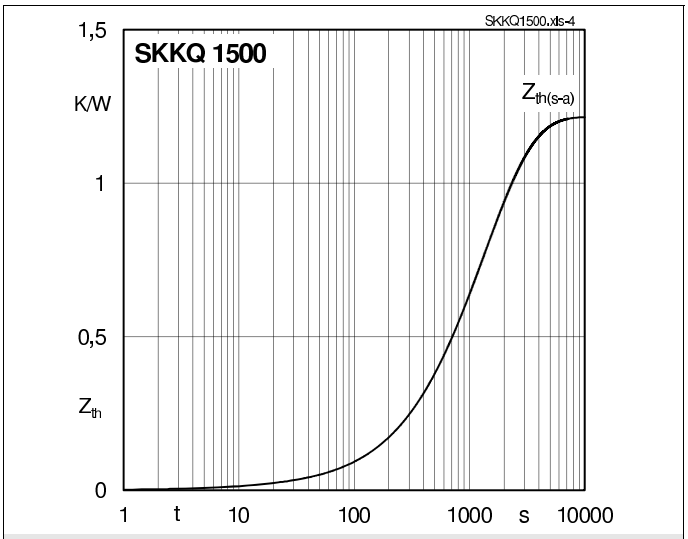


Fig. 4: Typ. transient thermal impedance $Z_{th(s-a)}$ vs. time (natural cooling)

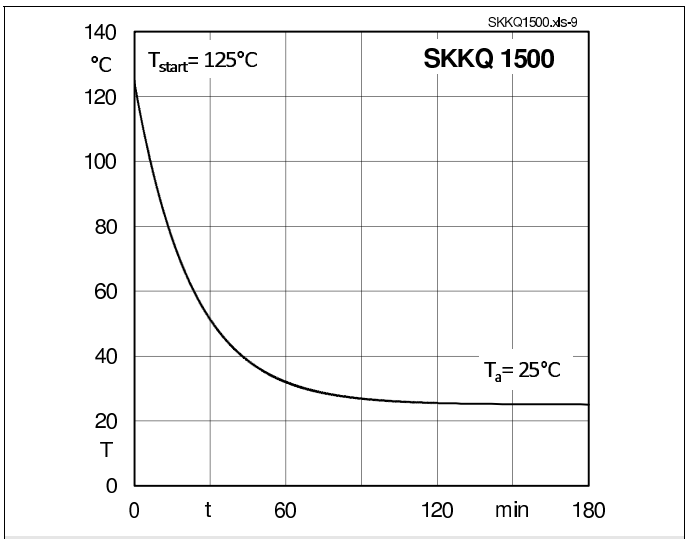


Fig. 5: Typ. cooling down vs. time (natural cooling)

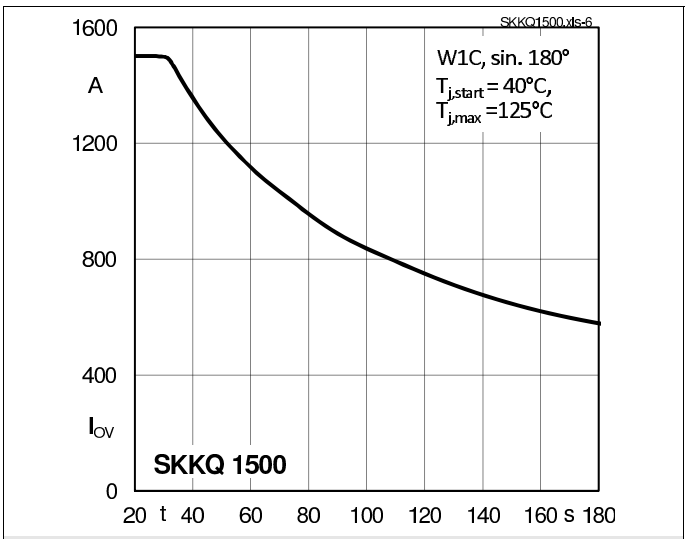


Fig. 6: Typ. overload current vs. time (natural cooling)

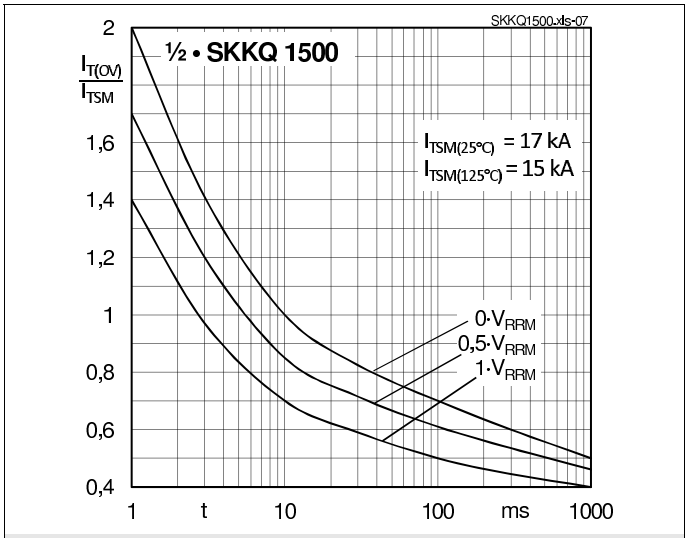


Fig. 7: Surge overload current vs. time

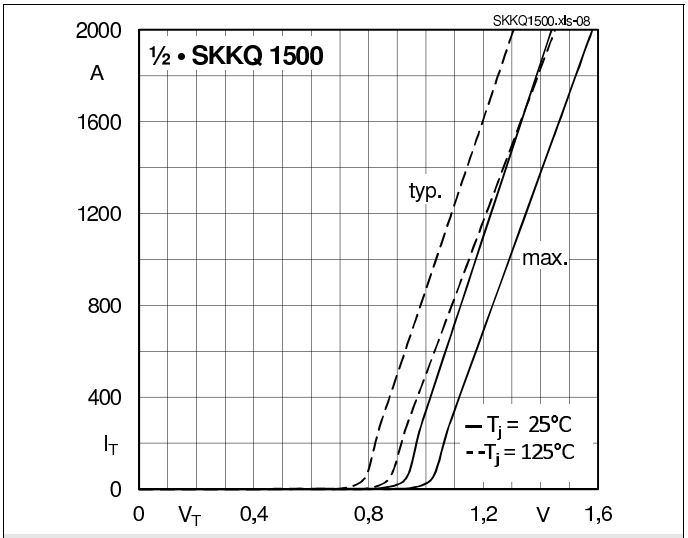


Fig. 8: On state characteristics

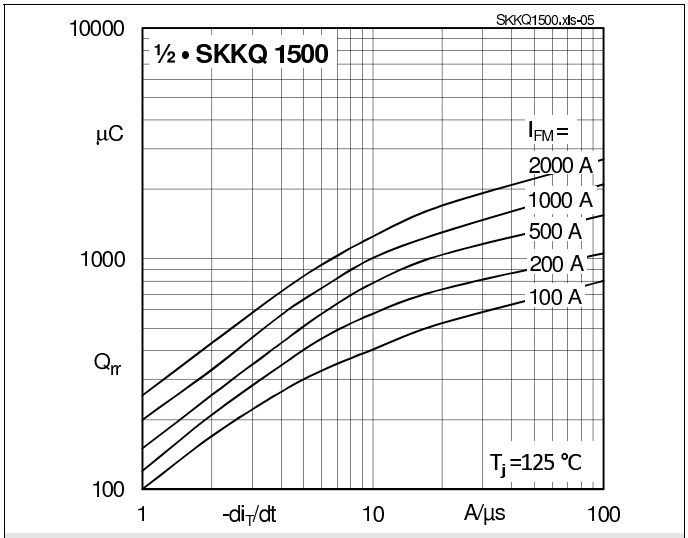


Fig. 9: Recovery charge vs. current decrease

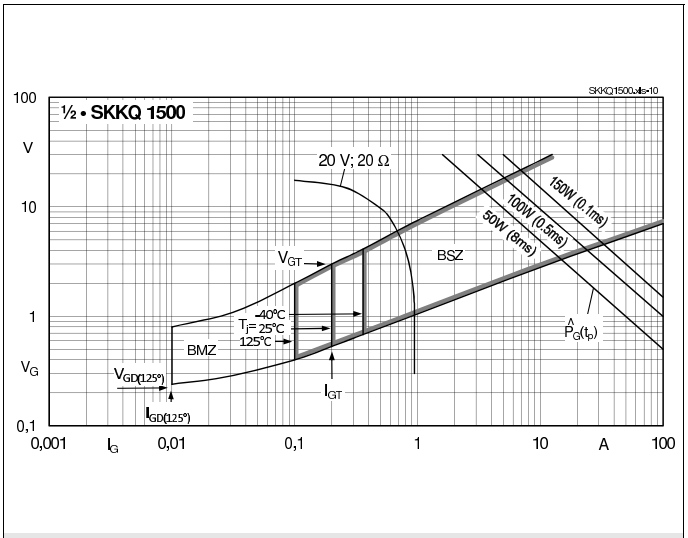
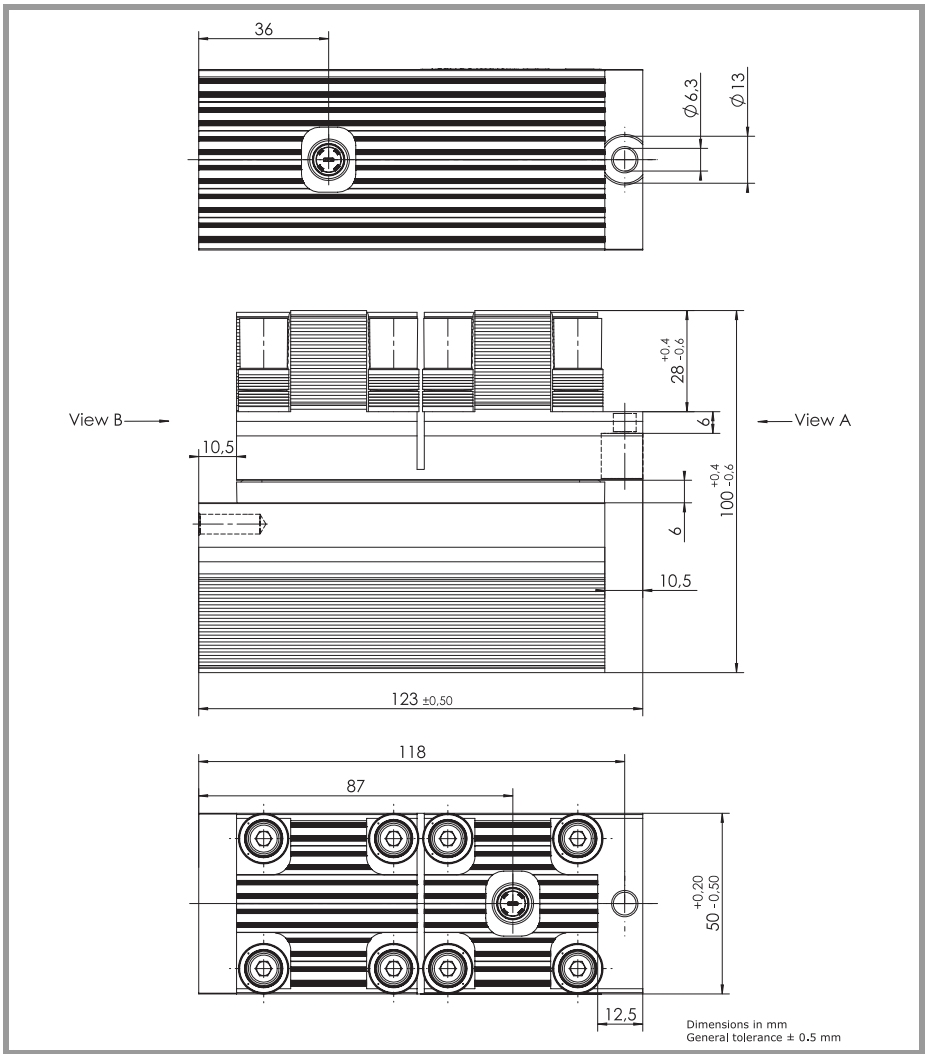
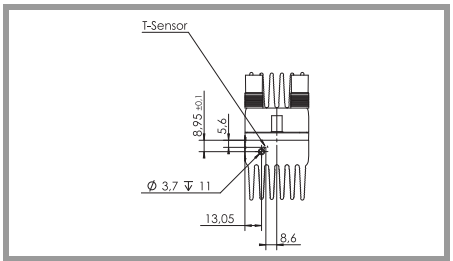


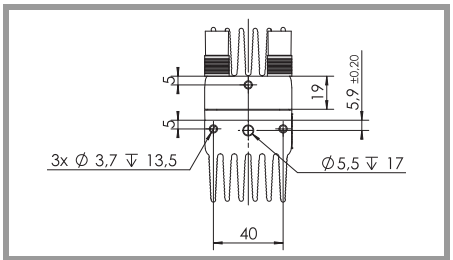
Fig. 10: Gate trigger characteristic



SEMiSTART 2



View A



View B

This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, chapter IX.

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